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## 《論 文》

# Establishing Educational Technology Selection Criteria: An Evaluation of Three Relevant Software Applications

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The internet, e-mail, CALL, interactive multimedia and other computerized educational tools are increasingly being implemented in our schools. Computers will likely be increasingly important tools of communication throughout our lives and the lives of our students. Educators must be prepared to become involved in the selection process to assure that the most appropriate, efficient and useful applications become part of the syllabus or curriculum.

The purpose of this paper is to provide teachers and administrators with various resources and means to carefully consider the contextual elements -- learner, syllabus, institution and teacher (who is often left unconsidered); to avoid being pushed into acceptance of inappropriate technology by groups or individuals unfamiliar with classroom dynamics and needs; and to perhaps lessen the chances of educators unsuspectingly taking on extremely inappropriate, improper or complicated software, decreasing the likelihood of time, money or other resource waste.

These objectives are achieved through: 1) exploration of evaluation concerns and criteria in educational computer application selection, 2) familiarization with websites, documents and other publications for critique of these applications, 3) creation of an evaluation format based on the tenets of this writing, 4) actual evaluation of three applications focused on internet page building, video capture and editing, and student grading and 5) provision of other resources and tools of use to educators in their own evaluations.

## I. The necessity of teacher involvement in technology selection

It is indisputable that many classrooms excel with sole application of the "basic five":

1. teacher 2. learner 3. classroom 4. blackboard and 5. paper (Celce-Murcia 1979, p 303). While keeping an eye open for important developments in educational technology, it is desirable to keep in mind that:

The appeal of technology here in educating students without teachers is

as vacuous and as seductive as is the latest gadget or pill that promises to let us lose weight without dieting or exercise. As language educators, we must never yield our authority to decide what and how our students need to learn — not to technology and new global communication experts, not to a worldwide consumer market that is ever so efficient at manipulating our desires and those of our children... (Tuman 1995, p 25)

Nonetheless, it is impossible to deny the important position information management technology occupies in the world of communication and especially in the worlds of our young learners. As educators, it is necessary to familiarize ourselves with new trends and know how to select those most beneficial to our learners and ourselves. Ervin warns,

If we do not do these things, we run the risk of having a new technology surprise us, and of having an application of that technology developed and sold to us (or to our administrators) in such a way that it runs counter to what we know or believe to be effective in second language teaching. (1993, p 15)

While educators all over the world will likely need to take caution to avoid manipulation by marketers of bells and whistles, tremendous resources are being put into the development of computerized information systems and often new computer software technologies show potential in enhancing various aspects of the classroom. In conflict with stated goals of technological development and internationalization, educators and students may be resisting the advance of computers to such an extent as to limit their societies' access to technological and linguistic developments. Whatever educators' stance is on computer technology, it is a rapidly developing force. As such, while indiscriminate use of technology is never wise, as with developments in our own fields of instruction, we owe it to our learners to keep up with major developments in information systems.

## **II. The role of the teacher in matching technology to cultural/classroom contexts**

There are perhaps many applications which may be very appropriate and useful to a given learning context and many that are not. This writing seeks to encourage open-minded caution on the part of educators. While focused on evaluation of three computer applications, this writing also strives to encourage teachers not to be "...technological determinists [regarding] technol-

ogy as an independent force that advances to its own logic and shapes human development..." but instead to be 'social determinists' of technology making sure that "technology manifests the values of the group [in this case teachers, and learners] which has designed, accepted and maintained it (Gordon 1996, p 13).

Taking charge of technology at institutions and making sure our technology manifests the values of classroom participants, involves many considerations and various specific criteria. While this writing is concerned with the hands-on evaluation of three computer applications and contains an evaluatory document, "Contextual Considerations in Educational Computer Application Selection," which will be used to critique the three applications, it is nonetheless necessary to take a more in-depth look at considerations ranging from those in the community, to the internal workings of the applications themselves.

Prior to evaluation of the three applications is discussion of concerns and educational theory as background for criteria. The question might be asked as Gerard L. Ervin asks in the title of his work, *Can Technology Fulfill its Promise?* Perhaps with the goal of answering his own question, Ervin provides a seven very useful "shoulds" (1993, p 12-14) for choice of technology:

1. **"Technology should be an investment, not a cost"** — as with any investment there will be unknown outcomes, even 'risks.' However, we should support only those technologies which "represent enthusiasm for the undertaking, confidence in the future and hope for a certain kind of outcome." Thereby we ensure that our institutions are not taking on mere "costs"...obligations, burdens that must be borne, however unwillingly."

2. **"Technology should fulfill needs, not create them"** — Sometimes technology is thrust upon us without sufficient consideration, not only for the financial side which includes maintenance, technical support, materials and training, but also without consideration of teacher time or curriculum time. Such technology often is not used nearly enough to make it cost effective.

3. **"Technology should enhance the curriculum, not dictate it"** — Most of us have probably seen it at least once in our careers — technology is installed, then learners and teachers, rather than accessing this technology via their own natural interest, are sometimes strong-armed into making it part of their classroom repertoire. This may even occur after the technology has become obsolete. If a technology has to be forced into a curriculum, it is extremely likely to detract from the program's original goals. Which brings us to a related topic:

4. **"Technology should augment live instruction, not replace it"** — Ervin perhaps summarizes the antithesis of this with his example of one institution's use of a CALL lab:

Rather than giving students assignments to be completed outside of class and

then built upon in class, students were taken in class groups, during class time, to the videodisk lab to work through the materials. All students would work on the same lesson for about the same amount of time ...[the teacher] would idly, for the most part, watch the students work through the materials... (1993, p 13)

The computer had replaced arguably, one of the most important elements of any classroom -- student-teacher interaction.

5. **"Technology should increase the quality of foreign language study, not merely accelerate it** -- Here Ervin says,

As language educators, we should resist any suggestion that the reason to implement technology is to decrease the amount of time students will have to spend in language study. At the very least, a technological enhancement to our institution should make the hours invested in language learning more productive than before (Ervin 1993, p 13)

There should be a high likelihood that learners will obtain higher exposure to language in a more easily-accessible manner (either through ease of comprehension or motivational quality).

6. **"Technology should inspire users, not intimidate them"** -- While many items of technology, increase ease of comprehension and motivation, those who have never used technology of a type similar to that in question will likely have a steep learning curve which may extinguish or dilute any benefit. Learning the technology should not demand so much time and effort as to detract from the ultimate goal of content learning. An abundance of user training and support are a must.

7. **"Technology should liberate users, not enslave them"** Educators might do well to remember, that while the learning of a technology (such as computers) in itself may have long-term value for the learner or teacher, the primary goal is mastery of course content. According to Erwin:

Teachers should not become so enthralled with technology that we forget what our role is, any more than a librarian should become so wrapped up keeping track of books on shelves that she or he prevents students from accessing and acquiring the knowledge contained in those books (1993, p 14)

Ervin's recommendations consist of broad recommendations that guide educators toward technology selection which better 'manifests the values of the group.' Let us proceed now to more concrete contextual considerations.

### **III. Student, syllabus, institutional and community considerations**

Most of the "shoulds" above are self-fulfilling once thorough needs analysis is conducted, and acted upon. As dealing with needs analyses at length would overextend the boundaries of this work, Celce-Murcia's 'Preliminary Information' for text (materials) selection (Celce-Murcia 1979, p 302) cover many of the important elements of a good needs analysis and contextual evaluation:

#### **1. Background Information on the Students:**

- a. age range;
- b. proficiency level in English
- c. sex distribution (segregated, or if mixed what percentage of M/F)
- d. level of general education
- e. background language(s) (homogeneous, heterogeneous);
- f. reasons for studying English (is it required or optional, is it professionally or socially advantageous?)

#### **2. Course Syllabus (whether predetermined or left to the teacher):**

- a. relative emphasis given to each skill (listening, speaking, reading, writing).
- b. those tasks each skill is needed for most (e.g., reading technical literature in physics);
- c. relative emphasis given to each language area (grammar, vocabulary, pronunciation);
- d. the use to which the language material will be put (e.g., how much of the vocabulary will be used for recognition or for both recognition and production purposes?)
- e. relative attention given to mechanics (penmanship, spelling, punctuation)

#### **3. Institutional Data**

- a. typical class size
- b. time: years and/or hours per week allocated to the study of English;
- c. type of physical environment/support (i.e., classroom size, flexibility of the seating arrangement, blackboard space, audiovisual equipment)
- d. preferred dialect of English (British, American, other);

e. institutional or national objectives for English instruction;

f. nature and form of any required internal, external English language examination.

Gordon (1996, p 11–15) lists other community-level considerations some of which are applicable to the institutional/school system setting. However, since many of these considerations apply to technologies which have much further-reaching effects on communities or societies than most individual educational computer applications, solely mentioning them is sufficient for this writing:

1. Appropriate technology best suits the needs and lifestyles of the people using it.
2. Appropriate technology should not damage the environment and should be sustainable.
3. Appropriate technology should keep costs within the economic means of a community [including 'costs to future generations and 'human costs such as work-related illness, dislocation stress].
4. Appropriate technology should enable local workers to earn living.
5. Appropriate technology should increase self-reliance.
6. Appropriate technology should use renewable sources of energy whenever possible, and should be economical in its use of non-renewable resources.
7. Appropriate technology should fit in with its social and cultural environment.

#### IV. Consideration of the teacher?

While many educators may possess great enthusiasm for working with cutting-edge technology, others may simply consider it hard work or perhaps even drudgery. The needs of the individual teacher are rarely taken into consideration. According to Feez (1997, p 4), any choice of materials and technology must involve the following:

- \*The learners' profiles
- \*The physical environment with its facilities and resources
- \*Their (the learners') own knowledge, skills and attitudes
- \*The institution, curriculum and syllabus

This list however, omits any mention of the teacher. It is surprising to discover that in the several sources on materials and technology selection accessed for this writing, while many encourage educators to research, experiment and to propagate the use of a variety of new material and technology, none consider the individual teacher's needs, resources and attitudes in establishment of selection criteria. Even Erwin appears to place the bulk of the responsibility in the hands of individual educators:

We must be the ones who stay abreast of technological developments in order to consider their possible application to teaching...

We should constantly evaluate existing and available materials and technologies so that we know what we like and do not like. Using this information, we should evaluate new materials and technologies to see if they meet our criteria, or if they might cause us to revise our criteria — which we must remain willing to do. (Ervin 1993, p 15)

However with teachers as with learners, the learning curve of many technologies may be considerably steep, becoming proficient in them may not be a teacher's first choice as leisure activity and the search for unbiased evaluations of technology in itself may be long and hard. Taking this time and difficulty into consideration, heading Feez' list above likely should be:

\*The teacher's own knowledge, skills, attitudes, time to research, evaluate and learn about the materials and technology and the benefits to the teacher of taking on the application.

While criteria for evaluating materials and technology for appropriateness to learners, institutions, facilities, curriculum and syllabus are readily available and are detailed below, it is necessary to set criteria which give consideration to the teacher who is often likely investigating out of personal initiative. This list has been created for this writing and is not intended to be inclusive:

Does the final product of the material or technology match the teaching philosophy/ lesson strategies of the teacher?

Is a friend, user group or colleague who may provide their own critique/ evaluation (and perhaps offer friendly, convenient technical assistance) us-

ing the software in the likely even that difficulties arise?

Does the teacher have the time necessary to become proficient in the use of the software?

Is the teacher proficient with the required computer and operating system ?  
(e.g., Windows or Macintosh)

Will the teacher's job become easier or workload substantially lighter through this technology?

Do all of the potential benefits make the time investment worthwhile?

Are any professional evaluations/ critiques of the application available? Are the evaluation/ critiques favorable?

## V. Examples of professional applications evaluation documents

We have looked at many theoretical sources of considerations and criteria in technology selection. In addition, many school systems provide their own real-world technology evaluation documents on the internet. I have included for reader comparison and contrast two such examples both of which are related to many of the theoretical tenets detailed above and both of which are contained in the educational software web-site, "The Pep Registry,". (Bubnic, et. Al [online]).

The first source of sample evaluation criteria is the Los Angeles County Office of Education's Division of Curriculum, Instruction and Assessment's "Educational Software Evaluation Form," which lists various evaluation considerations ranging from the general to the specifics of the final product, "Educational Content" to what actually appears on the screen, or "Presentation." This appears specifically targeted at software in which learners themselves actually work on the computers to achieve learning goals. (see p 20-21) The second form, "Software Evaluation Instrument" although directed specifically at children, is far more detailed and shows potential for evaluation of a wider variety of software, even those that may not have direct pedagogical functions such as the grading software — one of the three objects of evaluations performed in this writing (see p 22-23). The third, "Software Evaluation Instrument 2" delves more deeply into the actual technical workings of prospective applications as well as into pedagogical potential (see p 24-25).

Taking charge of technology selection at educational institutions involves many considerations and various specific criteria. As stated above, this writing contains an evaluatory document, based on the concepts presented up to this point and which will be applied to evaluation of the three example applications. However, before proceeding to actual evaluation of the three applica-



tions, it is advisable that the reader familiarize him/herself with the evaluation criteria on this document which is entitled, Contextual Considerations in Educational Computer Technology Selection (See Figure 1). Construction of the document is based on many of the considerations and theories detailed above.

In addition to independent hands-on evaluation, it is also a likely necessity that educators take a more in-depth look at considerations ranging from those in the community itself (see Gordon, above), to the more intricate workings of the specific applications. To facilitate this evaluation, there are many sources through which various types of software may be evaluated – both on and off the internet. These may range from critiques in the form of professional writings to internet chat pages about various uses, strengths and weaknesses of applications. As the actual sources tend to be different with each of the three technologies evaluated, sources are listed for each and any existing trial downloads introduced after each evaluation.

For video capturing, editing and replaying, Ulead Systems Inc.'s International's Media Studio 2.5 Video Edition was chosen. As movies and other videos in the target language tend to be very popular with foreign language students, video lessons with various special effects and other embellishments such as text, where necessary, may help increase or maintain learner motivation and interest.

VARed Software's VAR Grade. This software allows teachers to construct grading charts which upon entry of grading data automatically figure to-the-minute grade averages and allow creation of grade reports which can be posted for students to see at times of the teacher's choice. The software also has various other functions such as multi-formatted seating chart creation, and classroom research data gathering functions which allow learner grading and attendance data to be charted instantaneously with a variety of graphing tools.

Last to be evaluated is Adobe's Adobe PageMill 2.0. As language-learning homepages are often highly motivational and informative and rapidly broadening in application to just about every aspect of learning and administration, most educators in the modern world will soon need to have some knowledge of home page creation. This popular page creation package was chosen for this reason.

## Contextual Considerations in Educational Computer Technology Selection

**Step 1:** Take a preliminary check for appropriacy and practicality of the final product

(see "Considerations of Learner, Syllabus and Institutional Data For Final Product," bottom)

- 1-1 Does the final product of the application appear to be one which would be undertaken enthusiastically with hope for a certain outcome? y/n
- 1-2 Does the final product of the application appear to augment live instruction and not merely replace it? y/n
- 1-3 Does the final product of the application appear to make hours invested in language learning more productive than before? (or simply accelerate?) y/n
- 1-4 Will most students be able to get past any technological learning curve quickly? y/n
- 1-5 Is a far greater share of learning time spent on course content or on learning how to use the technology? y/n

Final product appropriate and practical? Yes\_\_\_ No\_\_\_

**If appropriacy and practicality (step1) are likely, proceed to: Step 2: Teacher learning curve and benefits**

A. Manuals, documentation, and functions conducive to quick adaptation?

- 2-1 Are the manuals and help documentation easy to understand? y/n
- 2-2 Do the manuals and help contain step-by-step instructions for all functions? y/n
- 2-3 Now look at the number of major functions listed in the manual. It is reasonable to expect one hour or more of learning time per function on an application taken on totally anew. Can you afford to spend/ is the final learning product worth this amount of time? y/n
- 2-4 Does the documentation (screens, commands and settings) appear so complex as to be intimidating? y/n

Conducive to Quick Adaptation? Yes\_\_\_ No\_\_\_

B. Teacher's background, benefits, access to help sufficient?

- 2-6 Is the teacher proficient with the required computer and operating system? (e.g. ,Windows, Macintosh, etc.) y/n
- 2-7 Are there any who may give on-the-spot assistance when difficulties arise? y/n
- 2-8 Does the teacher obtain credentials or other compensation through proficiency in the technology? y/n
- 2-9 Will the technology make the teacher more effective through making the teacher's job easier to perform or workload considerably lighter? y/n

Background, benefits, access to help sufficient? Yes \_\_\_ No\_\_\_

**If the final product is likely appropriate and practical (Step 1) and the teacher learning curve appears acceptable (Step 2),**

**proceed to: Step 3: Final decision**

- 3-1 Do benefits to learning appear to outweigh material, maintenance, technical support, and training costs? y/n
- 3-2 Do all of the potential benefits make the time investment worthwhile? y/n
- 3-3 Are the results of any professional evaluations/ critiques favorable? y/n
- 3-4 Are critiques of other similar applications more favorable? y/n
- 3-5 When is the desired date of classroom application?

Final Decision: For\_\_\_ Against\_\_\_ Try Other\_\_\_

**Considerations of Learner, Syllabus and Institutional Data For Final Product:**

### Student Background

- a. age range
- b. proficiency level in English
- c. sex distribution
- d. level of general education
- e. background language
- f. reasons for studying English (penmanship, spelling, etc.)

### Course Syllabus

- a. relative emphasis given to each skill
- b. those tasks each skill is needed for most
- c. relative emphasis given to each language
- d. the use to which the language material will be put
- e. relative attention given to mechanics

### Institutional Data

- a. typical class size
- b. time: years and/or hours per week
- c. type of physical environment/support
- d. preferred dialect of English
- e. institutional or national objectives for English
- f. nature and form of any required internal/external language examination

## VI. Evaluation of *Media Studio 2.5*

This section consists of step-by-step evaluations of the three applications detailed above via the evaluation sheet, Contextual Considerations in Computer Technology Selection. Please keep in mind that these evaluations are undertaken subjectively by a single individual and reflect his personal opinions in regard to adaptation of the three applications to one particular educational (Japanese four-year private university non-elective EFL) context. The intent is to neither criticize nor advertise but rather to promote critical thinking and resource allocation in educational technology selection. Readers are encouraged not to take these evaluations as gospel but instead to consider the level of effectiveness/appropriateness to their own teaching context and ultimately conduct their own evaluation of any promising applications.

To further insure a balance of opinions each evaluation begins with a brief manufacturer's introduction and ends with locations on the internet providing opinions ranging from advertisement to critique. The first evaluation begins with an introduction from Ulead Corporation's shareware help file entitled, New Products:

...MediaStudio Pro is a collection of programs designed to manipulate and manage multimedia, with a special accent on creating video. This suite of programs and utilities has all the tools you need to produce professional-quality video right on your PC. Imagine creating and capturing video, enhancing images, editing and recording sound, visually cataloging your files, and animating transitions between images all with one integrated package! You can convert files from one format to virtually any other, browse through Photo CD's like a racehorse, and capture anything displayed on your screen. MediaStudio is the complete solution for any multimedia environment! (Ulead, 1997)

Primary functions included in Media Studio 2.5:

- Selecting correct video and audiocapture format settings
- Capturing video onto computer
- Adding and editing sound track
- Adding text
- Adding color only segments
- Saving files Correctly
- Inserting images into video
- Editing images
- Retouching
- Adding transitional effects

Adding special effects

Splicing all types of  
media/segments

During the following evaluation of Media Studio 2.5, (and the two subsequent applications) please refer back to Contextual Considerations in Educational Computer Technology Selection (Hereafter, "the evaluation form") for the actual questions which correspond to the numbers provided at the beginning of each answer.

Evaluation of Media Studio 2.5 based on the evaluation form, "Contextual Considerations in Educational Computer Application Selection":

For the Step 1 check of appropriateness and practicality on the evaluation form, the final product consists of classroom and self-access videos. (1-1) Yes, the videos insofar as their content makes course content more easily understood, focused on, interesting -- more accessible to learners. For this reason, video would be applied enthusiastically by the teacher for the purpose of enhancing the learning process. (1-2) Yes, video potentially augments live instruction by showing actual situational application of course content. (1-3) Yes, appropriately designed videos raise comprehension and motivation. (1-4) Yes, because for learners in the most contexts, there is virtually no technological learning curve involved in working a VCR. (1-5) Yes, far greater time is spent on course content than on learning the technology involved.

All positive answers for step one appear to indicate that the final product, videos prepared for classroom and self-access learning are appropriate and practical for the context and the educator will likely proceed to Step 2. Step 2 assesses the teacher's learning curve as well as benefits that use of the application may bring to the teacher him/herself. Part A of Step 2 is concerned with manuals and documentation which accompany the software as well as the various functions which the application perform.

Beginning with A 2-1 Yes (with reservations), the manuals and help documentation are easy to understand but contain a lot of functions, technical terms and new concepts likely to wear down the modestly interested novice to video editing. A 2-2 Yes, the manuals do however, contain step-by-step instructions for all functions. A 2-3 Yes, three hours average learning time per function (12 functions, likely 36 hours) could probably be afforded considering the savings of time and payoffs in content accessibility over the long-term. 2-4 Yes, the Video Editor window, although ingeniously designed, has so many commands and buttons with unfamiliar symbols which make it appear rather intimidating. There is also a maze of other windows

(frames) with their own buttons and other settings and selections which are intimidating and difficult to keep track of. The verdict for Step 2 part A, due to the conceptual difficulty involved with a new field and the complexity of the screens, commands and settings, would have to be "No," it is not conducive to quick learning. Nonetheless, the teacher who enjoys working with technology would likely enjoy this high-tech tool.

Part B of Step 2 deals with the teacher's background, benefits, and access to help. B 2-6 Yes, I am sufficiently proficient with the required Windows operating system. B 2-7 No, I am aware of no one who might be able to provide on-the-spot assistance in Sapporo, Japan. B 2-8 No, no credentials or compensation are obtained directly for proficiency in this software. B 2-9 Yes, the technology will likely make the teacher more effective in the long-run by decreasing preparation time, and aiding learner comprehension, focus and motivation for other related activities. For Part B, while there is no access to on-the-spot help, my background is sufficient and there are substantial long-term benefits.

As in the case Step 2 A of the evaluation, In part B, the decision may be difficult. Often, software possesses great long-term potential, yet requires familiarization with the concepts and terminology of entirely new fields and complex pieces of information software. Media Studio 2.5 is such an example. In my opinion, only the adventurous lover of technology who wants to enliven his/her classes with computer enhanced video should proceed to Step 3. Conversely, those who find working with computers hard work or drudgery, or those who simply cannot become enthused over video learning, likely need not present their colleagues with any proposals on this application or proceed further in this evaluation.

For those video and computer technology enthusiasts still in consideration of Media Studio 2.5, the evaluation process continues on to Step 3 where costs and benefits are weighed for arrival at final decision over whether to adapt the product to use in the classroom. 3-1 Yes, while the required monetary investment approximates U.S.\$500.00 for Media Studio 2.5 plus \$150.00-500.00 for the necessary video integrated circuit card (hardware to be installed inside the computer). Although the individual educator would not likely want to dig into his/her own pocket, for an institution truly concerned with learning this investment is not excessive. However, costs may be expensive enough for a budget committee to require advance commitment on the part of the educator and rather a detailed plan of use including video scripts, etc. Additionally, maintenance costs and costs for on-line technical support appear to be virtually nonexistent. Training costs, if staff were paid by the hour for training time could be substantial as even the most effective and efficient training could range between twenty and forty hours. 3-2 Again, yes but only if the educator is a video and software enthusiast. 3-3 Yes, however while soft-

ware evaluations are favorable, (3-4) No, no websites recommending similar software over Media Studio 2.5 appear to exist. (see additional sources of evaluation below). 3-5 Although no specific target date has been set, the date for first use should be set for no sooner than the time required for forty hours of practice/ creation time.

The final decision based on the various criteria is "For" adaptation of an application of this type. However, this adaptation should only be by those educators who possess interest in both video materials AND computer software technology, have a detailed script or plan of action in advance and enjoy spending a great deal of time working with both.

Additional sources for evaluation of Media Studio 2.5:

1. Software Review, L.C., Benchin' Product Discussion Message: "How does Media Studio Pro Compare to Adobe Premier?" (<http://www.benchin.com>)
2. ZD Net "Media Studio Steps Up To the Big Leagues." (<http://www.zdnet.com>)

## VII. Evaluation of VAR Grade for Windows

Although working with dates, grades and numbers may be tedious for many, and little has been written about this particular kind of software, few would disagree that the to-the-minute precision and reality that grading software provides is motivational for learners and saves time in the long-run. While there are few critiques of grading software on the internet, in the VAR Grade manual (Revie 1997, p 1), VARed Software introduces its product, the second to be included here, as follows:

*VAR Grade for Windows (VGW)...helps you to both grade your classes and also to record and quantify attendance in your classes. This is a complete grading system, and will do almost anything that you need to do. In particular, VGW will allow you to record, print and analyze grades and attendance...*

*There are numerous features in this program, but, in general, VGW allows an almost unlimited number of students, grades, attendance, database items, reports and analyses. You can do statistical analyses and plots, manipulate and print the data in a myriad of ways, and use any grading system. There are as many grading systems as there are teachers. In that light, the program allows you to alter how it works, both your input and program*

*output. VGW is the only grading program that doesn't constrain you to use any particular grading system or method, the only one that lets you print data any way you want, and is easily the most flexible and complete system available...you should use its statistical and plotting capabilities to try to understand more about your students and how to evaluate their performance...*  
(Revie 1997, p 1)

Primary functions included:

Entering student information	Setting up database files
Importation of Student names from other files	Defining seating charts
Defining dates and attendance	Defining grading printout format
Defining tasks	Defining data plotting format
Assigning weights to tasks	Assigning final grades

Evaluation of *VAR Grade* based on the evaluation form, "*Contextual considerations in Educational Computer Application Selection*":

For the Step 1 check of appropriateness and practicality on the evaluation form, the final product consists of "to-the-minute" grade reports which are posted each class for students to see. (1-1) Yes, the application would be applied enthusiastically by the teacher for the purpose of motivating students by providing them with a "reality check" on their standing. (1-2) Yes, per class grade sheets potentially augment live instruction by motivating lackadaisical students who are out of touch with grading reality, clearly showing how hard they have to work to reach satisfactory standing. (1-3) Yes, this motivational final product potentially makes the hours invested in language learning more productive than before. (1-4) Yes, since there is no technological learning curve involved (1-5) n/a There is no need for students to do anything with the technology in this case. Students merely look at the grade chart which is posted on the wall. All positive or neutral answers for step one likely indicate that the final product, "to-the-minute" grade reports which are posted each class for students to see are appropriate and practical to the context and the educator will likely desire to proceed to Step 2.

Step 2 assesses the teacher's learning curve as well as benefits that use of the application may bring to the teacher him/herself. Part A of Step 2 is concerned with the manuals and

documentation which accompany the software as well as the various functions which the application performs. Beginning the evaluation with A 2-1 Yes, the manuals and help documentation are easy to understand and only contain a moderate number of functions. A 2-2 Yes, the manuals do contain step-by-step instructions for all functions. A 2-3 Yes, one to two hours average learning time per function (10 functions, likely 10-20 hours) could probably be afforded considering the increased motivation the grade printouts facilitate. 2-4 No, the documentation contained in VAR Grade is not so complex as to be intimidating and appears to be easily graspable to anyone even vaguely familiar with spreadsheets, grading, weighting, etc. The verdict for Step 2 A due to the overall simplicity and easily comprehensible design would have to be "Yes," it is conducive to quick learning.

Part B of Step 2 deals with the teacher's background, benefits, and access to help. B 2-6 Yes, I am sufficiently proficient with the required Windows operating system (However, this software is also available for Macintosh operating systems). B 2-7 No, I am aware of no one who might be able to provide on-the-spot assistance in Sapporo, Japan. B 2-8 No, no credentials or compensation are obtained directly for proficiency in this software. B 2-9 Yes, the technology will likely make the teacher more effective in the long-run by freeing up class time for activities that are directly oral and motivating students to "get on the stick" upon awareness of their standing. As for Part B of Step 2, while there is no access to on-the-spot help, my background is sufficient and there are substantial long-run benefits.

As in the case Step 2 A of the evaluation, the decision will likely be a fairly easy one. In my opinion, all interested in the motivational benefits of to-the-minute grade reports should proceed to Step 3.

Step 3 is where costs and benefits are weighed for arrival at final decision over whether to adapt the product to use in the classroom. 3-1 Yes, the required monetary investment approximates a modest U.S.\$50.00 for VAR Grade. However, this cost is not unreasonable for the typical Japanese materials budget. Additionally, maintenance and technical support costs again appear to be virtually nonexistent. Training costs, if staff were paid by the hour for training time would likely be moderate as training would not likely exceed ten hours. 3-2 Yes, the potential benefits make the time investment worthwhile. 3-3 No, not all critiques of this software are totally favorable. 3-4 Yes, there are critiques of other similar applications such as Gradebook which is not compared to VAR Grade, but rather is more positively described (it also costs \$100.00 twice VAR Grade). For details of these two please see The science teacher's lounge below ([www.deepwell.com/ccimin](http://www.deepwell.com/ccimin)). 3-5 Although no specific target date has been set, the date for first use should be set for no sooner than the time required for twelve hours of practice



and setup time. The final decision based on the various criteria is "For" adaptation. However, those with adequate time may want to try another application.

Additional Sources for Evaluation of VAR Grade:

Softseek.com, "VAR Grade for Windows 95 by VARed Software  
(<http://www.softseek.com>)

The Science Teacher's lounge Teacher's Tools "...excellent [grading]  
software tools... ([www.deepwell.com/ccimino/teachertools.html](http://www.deepwell.com/ccimino/teachertools.html))

### VIII. Evaluation of Adobe PageMill 2.0

*Adobe PageMill Web page authoring software was specifically designed to address the needs of non-technical people who want to create and maintain content on the Web. Adobe PageMill is easy to use, fast, and includes, in one well-integrated package, everything you need to create Web pages. You write your pages in what looks and feels like a normal word processor -- only this one knows about the Web. Your pages show up exactly as they would in a Web browser. You can apply styles, place and resize images, and drag and drop parts of your document in other locations. But you will not make mistakes. Adobe PageMill reads your existing Web pages -- even corrects errors in them -- and produces output that works with any Web server and any Web browser. Creating links is easy, and Adobe PageMill ensures that the links remain correct as you copy and paste them throughout your Web pages. The built-in Preview Browse mode even lets you test your pages without leaving the program. (Adobe, 1998)*

Primary functions included with Adobe PageMill 2.0:

Setting up background and text	Creating tables
Adding images	Creating frames
Creating, moving and testing links	Viewing, editing and testing
Creating rule and format text	Creating interactive forms
Associating CGI script to forms (assigning of interactive input to designated files)	

Evaluation of *Adobe PageMill 2.0* based on the evaluation form, "Contextual considerations in Educational Computer Application Selection":

For the Step 1 check of appropriateness and practicality on the evaluation form, the final product consists of online interactive content and testing homepages. (1-1) Yes, the application would be applied enthusiastically by the teacher for the purpose of getting the main study (and testing) focus outside of limited class time freeing up the weekly ninety minutes for more direct oral communication practice. An additional reason for enthusiasm is preparation for the day in the not-so-far future when internet video home-page transmission is able to reach real-time (currently, video files usually require substantial waiting time to download from the internet to personal computers) It is likely that video files created on video capture and editing software such as Media Studio 2.5 will make video home-pages more feasible. (1-2) Yes, interactive content and testing home-pages potentially augment live instruction by freeing up class time and potentially forcing students to take responsibility for their own learning. (1-3) Yes, as many students are not interested in EFL, but are interested in computers, interactive home-pages may provide additional motivation for these students to study. There may also be fewer distractions outside of class, especially if students are able to access the web-pages from their own homes. (1-4) Yes, because most Japanese tertiary students have access to the internet in computerized information management classes (1-5) Yes, because students are likely to be familiar with the technology involved in accessing and using well-designed web-pages.

All positive answers for step one likely indicate that the final product, online interactive content and testing home-pages are appropriate and practical to the context and the educator will likely desire to proceed to Step 2.

Step 2 assesses the teacher's learning curve as well as benefits that use of the application may bring to the teacher him/herself. Part A of Step 2 is concerned with manuals and documentation which accompany the software as well as the various functions which the application perform. Beginning with A 2-1 Yes, the manuals and help documentation are easy to understand and only contain a moderate number of functions. A 2-2 Yes, the manuals do contain step-by-step instructions for all functions. A 2-3 Yes, one to two hours average learning time per function could probably be afforded considering the increased class time the web-pages facilitate. 2-4 No, the documentation contained in Page-Mill is not so complex as to be intimidating and appears to be easily in grasp of anyone who has accessed a variety of internet home-pages. The verdict for Step 2 A due to the overall simplicity and easily comprehensible design would

have to be "Yes," it is conducive to quick learning.

Part B of Step 2 deals with the teacher's background, benefits, and access to help. B 2-6 Yes, I am sufficiently proficient with the required Windows operating system (However, this software is also available for Macintosh operating systems). B 2-7 No, I am aware of no one who might be able to provide on-the-spot assistance in Sapporo, Japan. B 2-8 No, no credentials or compensation are obtained directly for proficiency in this software. B 2-9 Yes, the technology will likely make the teacher more effective in the long run by freeing up class time for activities that are directly oral and motivating students who have interest in computers... As for Part B of Step 2, while there is no access to on-the-spot help, background is sufficient there are substantial benefits in the long run.

As in the case Step 2 A of the evaluation, the decision will likely be a fairly easy one. In my opinion, all interested in the benefits of interactive practice and production home-pages should proceed to Step 3.

Step 3 is where costs and benefits are weighed for arrival at final decision over whether to adapt the product to use in the classroom. 3-1 Yes, the required monetary investment approximates a modest U.S.\$80.00 for PageMill. However, this cost is not unreasonable for the typical Japanese materials budget. Additionally, maintenance and technical support costs again appear to be virtually non-existent. Training costs, if staff were paid by the hour for training time would likely be moderate as training would not likely exceed ten to twelve hours. 3-2 Yes. the potential benefits make the time investment worthwhile 3-3 No, not all critiques of this software are totally favorable 3-4 No, there are no other more favorable critiques of similar applications. 3-5 Although, no specific target date has been set, the date for first use should be set for no sooner than the time required for twelve hours of practice time. The final decision based on the various criteria is "For" adoption of an application of this type.

Additional sources for evaluation of Adobe PageMill 2.0:

1. Adobe Systems Incorporated, "Adobe PageMill 2.0 Product Information"

(<http://www.adobe.com>)

2. *Software Review, L.C., Benchin* "Adobe PageMill, End-User Bench-Marks/ Reviews (34 users)" (<http://www.benchin.com>)

## IX. Conclusion

This writing has set out to explore evaluation concerns and criteria in educational computer application selection and to familiarize educators with web-sights, documents and other publications for use in evaluation of these applications. These objectives have been achieved through an overview of various technology selection theories and principles established by several specialists in the field. These principles have been combined with criteria which facilitate consideration of the individual teacher to construct a educational computer technology evaluation form. This form takes into account many contextual variables. With this form, sample evaluations have been performed on three different applications. While *Adobe PageMill 2.0* and *VAR Grade* are likely cost effective for most teachers or institutions, *Media Studio 2.5* is likely to be eliminated by all but those most committed to both video in the classroom and computer technology.

Other aims of this writing have been to provide educators with various resources and means to carefully consider the contextual elements of learner, syllabus, institution and teacher. Readers have been encouraged to avoid being pushed into acceptance of inappropriate technology by those with no direct relation to themselves or their classrooms, and to consider carefully any computer technology decision to conserve valuable resources in education.

The resources and tools included in the appendices at the end of this writing will likely further assist educators in their consideration of educational computer technologies.

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Board of Studies NSW

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Teaching and Technology: Software evaluation forms on the WWW: [date?]

(<http://www.hamline.edu/~kmborows/maed/tech.html>.)

Tuman, M. 1995 'Building the World's Best English Classroom: 'Speculations on literacy and limits' in *English in Australia* III April 1995 p 17-25.

Ulead Corporation, 1997 "Demo Downloads" (<http://www.ulead.com>)

Ziff-Davis, Inc. 1998 *ZD Net* (<http://www.zdnet.com>)

### **Appendix A: Other relevant sources on evaluation**

*Kathy Schrock's Guide for Educators* on the WWW has a wealth of education-related information. The following topics are just a small portion of those listed at <http://www.capecod.net/schrockguide> under "Computing, Technology, and Computer Companies":

#### Butte County Technology Matrix

...a frames-based set of standards to help insure that "technology integration is evident in curriculum planning, delivery and evaluation"

#### Computer Teacher's Resource Page

...links to sites that contain ideas, activities or lesson plans for using computer technology in the different disciplines

#### Computer Technology for Educators

...a list of sites to help educators keep up with the newest technology

#### Educational Shareware from the OERI Gopher

...many educational shareware programs for downloading...

#### Plugging In

...a report which helps define how to measure the effectiveness of technologies and technology enhanced educational programs

#### Tammy's Technology Tips for Teachers

...a wonderful site including lessons, rubrics, ideas, policies, and many other worthwhile items of interest for educators in the technology field

#### Technology in the Curriculum

...search this database of information on all types of technology resources

(ハイアー ジュームス デビット 本学外国人教師)

Another excellent web-site which has educational technology evaluation as its focus is: Teaching and Technology: Software evaluation forms on the WWW at <http://www.hamline.edu/~kmborows/maed/tech.html>. which contains the following:

1. Children's Software Revue See "Evaluation instrument" (see also Appendix B of this writing)
2. SuperKids: Educational Software Review See "Inside this issue,"
3. SimCity Review Dr.K's Software Ratings Educational Software Evaluation Form From the Los Angeles County Office of Education.
4. Kentucky Education Technology System: Software Evaluation Form
5. Software Evaluation and Selection Page for Educators Educational Software Evaluation From: Dr.Jim Kerr (Teaching &... [date unprovided] p 1/1)

#### **Appendix B: Examples of professional evaluation forms in use**

Three examples of professionally or institutionally constructed evaluation forms (mentioned above) are found below: 1) Los Angeles County Division of Curriculum, Instruction and Assessment's, Educational Software Evaluation Form 2) Software Evaluation Instrument and 3) Evaluation Instrument 2:

**Los Angeles County**

**Office of Education Division of Curriculum, Instruction, and Assessment**

**Educational Software Evaluation Form**

Program Title : \_\_\_\_\_

Subject Area(s) : \_\_\_\_\_

Age/Grade Level : \_\_\_\_\_

Mode(s) of Presentation : \_\_\_\_\_

Publisher & Copyright Year : \_\_\_\_\_

Hardware Requirements : \_\_\_\_\_

*Evaluator :*

For each of the criteria below, determine if the program is Excellent, Good, Fair, or Poor.

Place a check mark in the correct column by each item.

<b>Educational Content</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
the program content fits with current curriculum, and is accurate				
the program provides clear and concise learning objectives or learning objectives are explicit				
the content, examples, and illustrations used are appropriate for intended age/grade level				
the program utilizes sound instructional strategies, and content mpresentation is logical and clear				
the program accomplishes stated objectives				

<b>Ease-of-Use</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
using the program does not require extensive computer knowledge				
the program allows for varied input formats e.g., use of keyboard, mouse etc.				
the program is easy to load				
saving and printing functions easy to accomplish				

<b>Interactivity</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
the program engages students actively				
the program provides useful feedback on students' actions				
tha program utilizes interactive capabilities of computer effectively				

<b>Motivational Aspects</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
the program captures and maintains students' attention				
the program provides students with choice, challenge, and curiosity				

<b>Presentation</b>	<b>Excellent</b>	<b>Good</b>	<b>Fair</b>	<b>Poor</b>
the screen displays are clear and nicely formatted, i.e. no overcrowded and cluttered screens, no unfamiliar abbreviations, codes, or icons				

the program uses text, color, graphics, soundm animation, and video appropriately				
the program uses transitions and visual effects appropriately				



**[Click here to return to the Teacher Technology Center's Homepage](#)**

Source:

Anne Bubnic and Warren Buckleitner 1998, PEP Rrgistry of Educational Software Publishers.

[Online]. Available at <http://www.microweb.com/pepsite/Software/publishers.html>

<http://www.microweb.com/prpsite/revue.html>



## Software Evaluation Instrument

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The following definitions and key considerations are used in evaluating software titles by reviewers and testers associated with the Children's Software Review. Also included is a section to assist with the comparison of software packaging. Rankings are used to help evaluate titles.

(A=Always, S. E. = Some Extent, N = Never, n.a. = Not Applicable)

### I. Packaging Integrity (Does the box accurately represent the software?)

- \_\_\_\_\_ Clearly stated educational objectives and age appropriateness
- \_\_\_\_\_ Described specific learning skills addressed by software content
- \_\_\_\_\_ Used true screen shots to illustrate content features

### II. Ease of Use (Can a child use it with minimal help?)

- \_\_\_\_\_ Skills to operate the program are in developmental range of the child
- \_\_\_\_\_ Children can use the program independently after the first use
- \_\_\_\_\_ Accessing key menus is straightforward
- \_\_\_\_\_ Reading ability is not prerequisite to using the program
- \_\_\_\_\_ Graphics make sense to the intended user
- \_\_\_\_\_ Printing routines are simple
- \_\_\_\_\_ It is easy to get in or out of any activity at any point
- \_\_\_\_\_ Getting to the first menu is quick and easy
- \_\_\_\_\_ Controls are responsive to the touch
- \_\_\_\_\_ Written materials are helpful
- \_\_\_\_\_ Program instructions can be reviewed on the screen, if necessary
- \_\_\_\_\_ Children know if they make a mistake
- \_\_\_\_\_ Icons are large and easy to select with a moving cursor
- \_\_\_\_\_ Installation procedure is straightforward and easy to do

### III. Childproof (Is it designed with "child-reality" in mind?)

- \_\_\_\_\_ Survives the "pound on the keyboard" test
- \_\_\_\_\_ Offers quick, clear, obvious response to a child's action
- \_\_\_\_\_ The child has control over the rate of display
- \_\_\_\_\_ The child has control over exiting at any time
- \_\_\_\_\_ The child has control over the order of the display
- \_\_\_\_\_ Title screen sequence is brief or can be bypassed
- \_\_\_\_\_ When a child holds a key down, only one input is sent to the computer

- \_\_\_\_\_Files not intended for children are safe
- \_\_\_\_\_Children understand the program's feedback
- \_\_\_\_\_This program would operate smoothly in a classroom setting

IV. Educational (What can a child learn from this program?)

- \_\_\_\_\_The program offers a good presentation of one or more content areas
- \_\_\_\_\_The graphics do not detract from the program's educational intentions
- \_\_\_\_\_Feedback employs meaningful graphic and sound capabilities
- \_\_\_\_\_Speech is used
- \_\_\_\_\_The presentation is novel with each use
- \_\_\_\_\_Offers a nice challenge range (this program will grow with the child)
- \_\_\_\_\_Feedback reinforces content (embedded reinforcements are used)
- \_\_\_\_\_Program elements match direct experiences
- \_\_\_\_\_Content is free from gender bias
- \_\_\_\_\_Content is free from ethnic bias
- \_\_\_\_\_A child's ideas can be incorporated into the program
- \_\_\_\_\_The program comes with strategies to extend the learning
- \_\_\_\_\_There is a sufficient amount of content

V. Entertaining (Is this program fun to use?)

- \_\_\_\_\_The program is enjoyable to use
- \_\_\_\_\_Graphics are meaningful and enjoyed by children
- \_\_\_\_\_This program is appealing to a wide audience
- \_\_\_\_\_Children return to this program time after time
- \_\_\_\_\_Random generation techniques are employed in the design
- \_\_\_\_\_Speech and sounds are meaningful to children
- \_\_\_\_\_A child can select from a range of difficulty levels
- \_\_\_\_\_The program is responsive to a child's actions
- \_\_\_\_\_The theme of the program is meaningful to children

VI. Design Features (How "smart" is this program?)

- \_\_\_\_\_The program has speech capacity
- \_\_\_\_\_Has printing capacity
- \_\_\_\_\_Keeps records of child's work
- \_\_\_\_\_ "Branches" automatically: challenge level is fluid
- \_\_\_\_\_A child's ideas can be incorporated into the program design in some way
- \_\_\_\_\_Sound can be toggled or adjusted

\_\_\_\_\_Feedback is customized in some way to the individual child

\_\_\_\_\_Program keeps a history of the child's use over a period of time

\_\_\_\_\_Teacher/parent options are easy to find and use

VII. Value (How much does it cost vs. what it does? Is it worth it?)

Considering the factors rated above and the average retail price of software (\$44.00), rate this program's relative value considering the current software market. Consider also any extra hardware attachments required to get full potential of the programming, e. g., a sound card, CD-ROM, etc.

Poor..... Good

1 2 3 4 5 6 7 8 9 10

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**Go to Evaluation Form 2**

**Return to Software Evaluation and Selection**

Source:

Anne Bubnic and Warren Buckleitner 1998, PEP Registry of Educational Software Publishers.

[Online]. Available at <http://www.microweb.com/pepsite/Software/publishers.html>

<http://www.microweb.com/pepsite/revue.html>

## Software Evaluation Instrument 2

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### Software Evaluation Criteria

Title: \_\_\_\_\_ Type: (circle one) CD-ROM or Floppy Disk

Author/Designer \_\_\_\_\_

Publisher: \_\_\_\_\_ Year \_\_\_\_\_

Age Range Indicated on Box: \_\_\_\_\_ Student Tested (yes/no) Price \_\_\_\_\_

Technical Requirements: Operating System \_\_\_\_\_ RAM \_\_\_\_\_ MAC or MS-DOS

---

### Management

Check if Available

\_\_\_\_\_ Sound Control

\_\_\_\_\_ Speed Control

\_\_\_\_\_ Support Materials

\_\_\_\_\_ Teacher Control

\_\_\_\_\_ User Control

### Program Type

Check if Available

\_\_\_\_\_ Drill

\_\_\_\_\_ Entertainment

\_\_\_\_\_ Multimedia

\_\_\_\_\_ Problem Solving

\_\_\_\_\_ Reference

### Services

Check if Available

\_\_\_\_\_ Free Tech Support

\_\_\_\_\_ On-line Support

\_\_\_\_\_ Program Updates

\_\_\_\_\_ Tutorials

\_\_\_\_\_ Warranty

### Technical

Check if Available

\_\_\_\_\_ Downloading

\_\_\_\_ Easy Installation  
\_\_\_\_ Networking  
\_\_\_\_ Printing  
\_\_\_\_ Sound Card Features

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Key: R= (Recommended) A= (Accepted) NR= (Not Recommended) NA= (Not Applicable)

Content Evaluation

\_\_\_\_ Active Learning Emphasized  
\_\_\_\_ Age Appropriate  
\_\_\_\_ Can be Customized  
\_\_\_\_ Current Information  
\_\_\_\_ Curriculum Congruence  
\_\_\_\_ Group Instruction  
\_\_\_\_ Logical Learning Sequence  
\_\_\_\_ Meets Objectives  
\_\_\_\_ Menu Operation Provided  
\_\_\_\_ Motivating to Students  
\_\_\_\_ Multicultural  
\_\_\_\_ Precise Directions  
\_\_\_\_ Process Oriented  
\_\_\_\_ Promotes Independent Use  
\_\_\_\_ Uniqueness of Software

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**Return to Evaluation Form 1**  
**Return to Software Evaluation and Selection**

Source:

Anne Bubnic and Warren Buckleitner 1998, PEP Registry or Educational Software Publishers.  
[Online]. Available at <http://www.microweb.com/pepsite/Software/publishers.html>  
<http://www.microweb.com/pepsite/revue.html>